

**SUBSTITUTE SPECIFICATION,
CLAIMS AND ABSTRACT**

SECURING DEVICE FOR REAR WALLS OF CABINET FURNITURE

TECHNICAL FIELD OF THE INVENTION

[0001] The invention relates to a securing device and more particularly, to a securing device for insertion into grooves in walls of cabinet furniture.

DESCRIPTION OF THE RELATED ART

[0002] Securing devices for cabinet furniture are typically single elements in the form of small blocks or brackets. The securing devices are set in the area of the rear inner corner between the rear wall and the ledge of the sidewalls and the shelves, with said ledge remaining behind the rear wall, in order to mount them using screws or nails, which are to be inserted through the diagonal through holes. In this manner, the rear wall and the respective shelf or top board and each sidewall of a cabinet are secured to one another at an angle of 90 degrees.

[0003] Handling such small securing devices is difficult, and there is the risk that when the securing device is not placed properly, the rear ledge will break away at the respective shelf or sidewall of the cabinet, when the setscrew is inserted or the nail is hammered in. Since the grooves at the sidewalls and the shelf of the cabinet are typically wider by a certain play than

the thickness of the rear wall to be held, there is the additional difficulty of securing the rear wall without play using the known small securing devices.

SUMMARY OF THE INVENTION

[0004] It is, therefore, an aspect of the invention to create a securing device of the kind mentioned above that is easier to handle, and when erecting cabinet furniture, in particular ready-to-assemble furniture, makes it possible to achieve a more reliable securing of the cabinet furniture elements, namely the rear wall, the shelf or the top board as well as the respective sidewall, which are to be connected in each corner area at an angle of 90 degrees to one another.

[0005] This aspect of the invention is achieved according to the invention with a securing device for walls and set in grooves of cabinet furniture. The securing device has at least one first support element that can be placed in an area between a rear wall and a grooved sidewall, at least one second support element that can be placed between the rear wall and a grooved shelf and/or top board, whereby the support elements exhibit contact sides that are each at a right angle to each other and diagonal to these contact sides, and at least one through-hole for receiving a set screw or a set pin. A plurality of support elements are integrated in one piece into two legs of a corner angle piece,

wherein said two legs are at a right angle with respect to each other, wherein at least one of the plurality of support elements is formed at each of the legs.

[0006] In the preferred embodiment, the corner angle piece possessing the plurality of support elements is integrated in the corner angle piece, as a larger component, which is easier to handle and easily placed at the rear on the rear wall of the respective cabinet furniture in the corner between the rear wall, the respective shelf or top board and the adjacent sidewall, and then attached by inserting the setscrews or the nails. In this manner, the rear wall is, on the one hand, secured to the shelf or the top board, for short also called top, and on the other hand to the adjacent sidewall, such that the sidewall and the shelf are also arranged at an angle of 90 degrees relative to one another. This significantly facilitates the erection or assembly of the ready-to-assemble cabinet furniture that has to be carried out in a do-it-yourself manner. Thus, when assembling a shelf or a top board, a sidewall and the rear wall, the shelf or top board is inserted in the groove achieving stability after attaching the securing device to the corner area of the cabinet furniture formed in this manner and an angle accuracy of these three elements relative to one another, which facilitates the assembly of the additional parts of the cabinet furniture. It is typically sufficient, to provide one securing device in two of

the corners of the rectangular or square rear wall, where said corners are diagonally opposite to one another in order to provide sufficient stability for the cabinet furniture.

[0007] Advantageous design features of the invention are described herein. Particular mention should be made of the spring-like bars, which are attached protruding to the outside at the strike sides of the legs of the corner angle piece that are located away from one another. The bars have a thickness such that they can be inserted into the groove next to the rear wall, which is received by said groove of the respective shelf or top board and the adjacent sidewall in order to eliminate the play of the rear wall, which as mentioned - is typically less wide than the grooves receiving it due to the required tolerances.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] These and other features and advantages of the present invention will be better understood by reading the following detailed description, taken together with the drawing wherein:

[0009] Fig. 1 is a side view of a securing device according to the present invention;

[00010] Fig. 2 is a top view of the securing device according to Fig. 1, with the circled details shown in a magnified view;

[00011] Fig. 3 is a perspective view of the securing device according to Figs. 1 and 2; and

[00012] Fig. 4 is a perspective view of the installed position of the securing device according to the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[00013] Fig. 1 shows a one-piece corner angle piece 1 having two legs 2 that are perpendicular to one another. As is apparent in the magnified view of Fig. 2 and the perspective view of Fig. 3, each of the two legs 2 of the corner angle piece 1 has an angle profile that is formed from two support bars 3, 4, which are arranged perpendicular to one another. Toward the outer sides, the support bars 3, 4 each exhibit strike sides 5, 6, which also run perpendicular to one another. Fig. 3 illustrates the strike sides 5 formed at the support bars 3 of the legs 2 of the corner angle piece 1. The strike sides 5 and the support bars 3 are located away from each other and are at an angle of 90 degrees to one another. In contrast, the strike sides 6, which are present at the support bars 4 of the legs 2 of the corner angle piece 1, are located in one common plane.

[00014] At their inner sides, the two legs 2 of the corner angle piece 1 are connected to one another using bracing bars 8; however, a continuous board or solid triangular shaped piece can be provided in their place as well. The bracing bars 8 follow the support bars 4 and exhibit approximately the same thickness as the support bars 4 of the legs 2. The wider outer sides 9 of the bracing bars 8 are located in one common plane with the strike sides 6 of the support bars 4 of the legs 2, as can be seen in Fig. 2. The legs 2 have distal ends, wherein the distal ends have ending surfaces that are perpendicular to their longitudinal portion with the bracing bars 8 of the corner angle piece 1, which connect the legs 2, not protruding from said distal end surfaces.

[00015] In addition, the distal ends of the legs 2 of the corner angle piece 1 have specially shaped support elements 10, which, regardless of the remaining design of the legs 2 of the corner angle piece 1, which function as securing devices according to the present invention. In the preferred embodiment, the support elements 10 are integrated in the legs 2 of the corner angle piece 1 as shown in Figs. 1, 3 and 4, and protrude with their inner end area in the gusset space, the inner corner area, between the support bars 3, 4 of the legs 2. Thus, in the preferred embodiment, wherein the support elements 10 are

integrated, the support elements 10 have a rear face area 11 that extends at a 45 degree angle to the support bars 3, 4 of the legs 2, which is perpendicular to the diagonal plane of the inner corner between the bracing bars 8 and the respective leg 2. Arranged in the direction of the diagonals of the inner corners between the support bars 3, 4 of the respective leg 2 is a through hole 12, which expands to an insertion opening 13 at the rear face side 11 of the protruding, thicker area of the support elements 10. The through hole 12 stretches to the outer corner edge between the support bars 3, 4 of the legs 2 and is used for receiving a means of attachment, which shall be addressed below.

[00016] The legs 2 of the corner angle piece 1 merge by means of an interim bar 14, which forms an outer flat portion 15 at the crest of the corner angle piece 1. In addition, spring-like bars 16 are attached to the corner angle piece 1 at the outer sides of the legs 2, where said spring-like bars 16 exhibit a flat longitudinal side 17, Fig. 2, which is located in a common plane with the strike sides 6 of the support bars 4 of the legs 2 and the outer sides 9 of the bracing bars 8 that connect the legs 2. The spring bars 16 taper off in a wedge shape toward the longitudinal edges 18, which are parallel to the longitudinal direction of the legs 2.

[00017] Fig. 4 illustrates the corner angle piece 1 according to the present invention, which serves as a securing device for cabinet furniture. Fig. 4 shows one of the lower corner areas of such a piece of cabinet furniture. For example, a board 19, namely a so-called bottom board, has a sidewall 20 of the cabinet furniture mounted to it in a perpendicular arrangement. The board 19 and the sidewall 20 to be secured to it at a right angle have grooves 21 near their rear narrow side areas, wherein both grooves 21 merge in a common plane. A rectangular rear wall 22 can be received by these grooves 21, wherein said rear wall 22 has a width that is slightly smaller than the width of the grooves 21.

[00018] Viewed from the front of the cabinet furniture, there is a ledge 23 of the board 19 and the wall 20 behind the placed and grooved-in rear wall 22. The corner angle device 1 serving as a securing device is placed on this ledge 23, with the strike sides 5 of its legs 2 that are at an angle of 90 degrees to one another. This occurs in a manner such that the spring-like bars 16, which protrude outwards at the two legs, engage in the grooves 21 of the board 19 and the sidewall 20 at the corner angle piece 2 adjacent to the rear wall 22. Due to the wedge effect of the spring-like bars 16, the rear wall 22 is at the same time suspended play-free in the grooves 21 in the area of the corner angle piece 1, whereby said corner angle piece 2

contacts the rear wall 22 together with the strike sides 6 of its legs 2 as well as the flat outer sides 9 of its bracing bars 8. Thereafter, a screw 24 is screwed into the support elements 10 of the legs 2, which, therefore, together act as support members, through the through hole 12 all the way to the material of the rear wall 22 and of the board 19 or the sidewall 20, respectively. This can occur only if the board 19 and the sidewall 20 are oriented precisely at a right angle to one another and are stabilized in relation to one another at the correct angle via the corner angle piece 1 as well as the secured rear wall in the groove.

[00019] Modifications and substitutions by one of ordinary skill in the art are considered to be within the scope of the present invention which is not to be limited except by the claims which follow.